

2016 SCHEDULE: June 1 – June 25, 2016, BROOKHAVEN NATIONAL LABORATORY

	SUN	MON	TUES	WED	THURS	FRI	SAT
WEEK 1		May 30	May 31	June 1	June 2	June 3	June 4
8:30 am				<p>Students' arrival at BNL all day</p> <p>Security/Housing</p> <p>(Check into Housing & Begin GUV Center processing if possible)</p> <p>Commence: Training Audit, Obtain BNL Photo IDs & Computer Access Cash Checks at Credit Union (if needed)</p>	NASA Summer School Opening		FREE TIME
9:00 am			Continue: Training Audit, Obtain BNL Photo IDs & Computer Access Cash Checks at Credit Union (if needed)		NSRL Facility Radiobiology Users Training: 9-10:30am Iris scans and TLDs from 10:30-12 noon (Building 911 Snyder Seminar Room)		
10:00 am							
11:00 am							
12:00 pm					Lunch	Lunch	
12:30 pm						1:00 - 2:00 pm Visit to Tandem Van de Graaff (Carlson)	
2:00 pm			John Norbury, Greg Nelson Arrival at BNL		<p><u>Radiological Worker Classroom Training and Exam: 2:00 - 4:30 pm Medical Building</u></p>	Complete iris scans and issuing of TLDs (if needed)	
3:00 pm						Elementary Radiation Physics (Norbury)	
4:00 pm						Elementary Radiation Biology (Nelson)	
6:00 pm					6:00 pm Student Welcome Dinner at MillHouse Inn		

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Week 2	June 5	June 6	June 7	June 8	June 9	June 10	June 11		
8:30 am	FREE TIME	Medical Dept. Welcome & Program Goals (Norbury, Guida, Ward)	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	FREE TIME	FREE TIME		
9:00 am		NASA's Mission & Roadmap (Simonsen)	PhysicsTool Kit (Nelson)	Heavy Ions and Shielding Physics, including Neutrons (Heilbronn)	9:00 – 10:30 DNA Repair (Wiese)			8:30-11:30 8:30 All start at NSRL First ½ Stay at NSRL for LAB Day - NSRL (Rusek) with Beam Time Second ½ at Medical Work on Beam Time Proposals, etc.	
10:00 am		What is Radiation? (Borak)	Radiation detection methods (Borak/Heilbronn)						
11:00 am		Break	Break	Break	10:30 – 11:00 Break				
11:30 am		Radiation Interactions with Matter (Borak)	Accelerators (Lowenstein)	Physics Homework/problems (Heilbronn)	11:00 – 12:00 Radiation Cytogenetics (Bailey)				11:30-11:45 Return to Medical Dept.
12:30 pm		Lunch	Lunch	Lunch	12:00 – 1:00 Lunch				11:45-1:00 Measuring Ion Interactions with Matter (La Tessa)
1:30 pm		Intro to Space Radiation (Norbury)	Radiobiology 1 (Hall)	Radiation Chemistry & DNA Damage (Held)	1:00 – 2:00 Mutagenesis (Kronenberg)				Lunch
2:30 pm		Introduction to Radiation Dosimetry (Borak)	Radiobiology 2 (Hall)	Dose responses, LET & RBE (Held)	2:00 – 3:00 Omics Technologies (Story)				2:30-5:00 Second ½ at NSRL For LAB Day - NSRL (Rusek) with Beam Time First ½ at Medical Work on Beam Time Proposals, etc.
3:30 pm		Break	Break	Break	Break				
4:00 pm		6:00 pm Evening Activity with G. Nelson	Principles of Radiation Protection (Borak)	Physics Chalk Talk/problems (Borak/Heilbronn)	Programmed Cell Death (Kronenberg)				Experimental Plan for Tomorrow (Rusek/Guida)
5:00 pm	5:00 – 6:00 pm Faculty & Student Reception –Large Conference Room– Catered		End	End	End	End			

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WEEK 3	June 12	June 13	June 14	June 15	June 16	June 17	June 18
8:30 am		Medical Dept. Daily Briefing	LAB DAY - NSRL (Kronenberg & Guida)	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept Daily Briefing	FREE TIME
9:00 am		Biology Experiment Overview for Tomorrow (Kronenberg/Guida) Biology Review (Kronenberg)	Beam Time 9:00–2:00	Radiosensitivity and Cell Cycle (Joiner)	Neurogenesis (Fike)	Radiation-induced Instability (Kronenberg)	
10:00 am		Low-LET Reference Radiation (Sivertz)		Effects on Embryo, Fetus, Transgenerational (Joiner)	Radiation Effects on Neurons & Stem Cells (Fike)	Space Radiation Transport & GCR simulation (Slaba)	
11:00 am		<i>Break</i>		<i>Break</i>	<i>Break</i>	<i>Break</i>	
11:30 am		Animal Studies (Weil)	LAB	Dose Rate Effects (Joiner)	11:00-12:30 BNL Tour + Photo (Tara Shiels) Start at Medical Bldg 490	HZETRN, OLTARIS & Monte Carlo codes (Slaba)	
12:30 pm		<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>	
1:30 pm		Genetics of Animal Studies (Weil)	LAB	Operations, Risk, Monitoring Crew Exposure, ISS dosimetry (Semones)	1:30 – 4:30 pm: LAB In 2 Groups: 1. Flow Cytometry (Guida) 2. DNA Damage, etc. (Angela Kim)	Track Structure 1 (D.Goodhead)	
2:30 pm		Leukemia (Weil)	LAB			Track Structure 2 (D.Goodhead)	
3:30 pm		<i>Break</i>	<i>Break</i>			<i>Break</i>	
4:00 pm		Beam Time Proposals Homework, Questions	End (no lectures after lab day)			GERM, RITRACKS (Kim, Plante)	
5:00 pm		End		6:00 – 9:00 pm Key Note Lecture (William Paloski) <i>Humans to Mars: Overcoming the Health & Performance Challenges</i> Catered	End	End	

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WEEK 4	June 19	June 20	June 21	June 22	June 23	June 24	June 25
8:30 am	FREE TIME	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	DEPARTURE
9:00 am		Tool Kit Practical (Nelson)	Space Radiation Environment (Zeitlin)	3D Cell Culture Models (Shay)	Radiation-Induced DNA Damage & Repair Triggers Cell Signaling (Boothman)	Review of Beam Time Proposals (5 min presentation +feedback)	
10:00 am		Non-targeted Effects (Azzam)	Accelerator Physics and Space Simulation (Zeitlin)	Biol Countermeasures For Radiation Protection (Shay)	CNS Effects (O'Banion)	Review Of Beam Time Proposals (continued)	
11:00 am		<i>Break</i>	<i>Break</i>	<i>Break</i>	<i>Break</i>	<i>Break</i>	
11:30 am		Beam Time Proposals (Nelson)	Haematopoietic & Immune Response (Nelson)	Epigenetics (Baulch)	Cardiovascular Effects (O'Banion)	Review Of Beam Time Proposals (continued)	
12:30 pm		<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>	
1:30 pm		Transgenic Models and New Imaging approaches (Katherine Castle)	Microbeams (Andrew Harken)	Acute Effects (Williams)	Cataracts (Ellie Blakely)	Student Team Presentations (~20 min each)	
2:30 pm		Cancer Stem Cells (Katherine Castle)	Microgravity Effects (Nelson)	Review Time (Nelson)	Heavy Particle Therapy (Ellie Blakely)		
3:30 pm		<i>Break</i>	<i>Break</i>	<i>Break</i>	<i>Break</i>	<i>Break</i>	
4:00 pm		Beam Time Proposals (Nelson)	Space Flight Measurements (Nelson)	End	Prepare Final Presentations <u>Beam Time Proposals Due</u>	Closing Ceremony Large Conf Room Catered	
5:00 pm	End	End					